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Appeal Brief

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: Minne Van Der Veen et al.

Examiner: Schwartz, Darren B.

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For: Identification of Digital Data Sequences

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**APPEAL BRIEF**

Appellants appeal the status of Claims 1 – 6 and 8 – 10 as presented in response to the final Office Action dated March 25, 2010, and submit this Appeal Brief.

TABLE OF CONTENTS:

1.	Real Party in Interest	page 3
2.	Related Appeals and Interferences	page 3
3.	Status of Claims	page 3
4.	Status of Amendments	page 3
5.	Summary of Claimed Subject Matter	page 4
6.	Grounds of Rejection to be Reviewed on Appeal	page 6
7.	Argument	page 7
8.	CLAIMS APPENDIX	page 16
9.	RELATED EVIDENCE APPENDIX	page 20
10.	RELATED PROCEEDINGS APPENDIX	page 21

**1. Real Party in Interest**

The real party in interest is Koninklijke Philips Electronics, N. V., the assignee of the entire right, title and interest in and to the subject application by virtue of an assignment recorded with the U.S. Patent and Trademark Office on January 21, 2005, at Reel/Frame 016823/0236.

**2. Related Appeals and Interferences**

Appellants are not aware of any appeals or interferences related to the present application.

**3. Status of Claims**

- a) Claims 1 – 6 and 8 – 10 are pending. Claims 1, 4 and 8 are independent.
- b) Claims 1 – 6 and 8 – 10 stand rejected and are under appeal.
- c) Claims 7 and 11 – 14 are cancelled without prejudice.

**4. Status of Amendments**

An amendment under 37 C.F.R. § 1.111, mailed to the USPTO on February 16, 2010, in response to a non-final Office Action dated November 17, 2009, was entered. No other responses/amendments were filed subsequent to the February 16, 2010 response, nor are any amendments pending. The claims listed in section 8 “Claims Appendix” of this Appeal Brief correspond to the claims submitted in Appellants’ response of February 16, 2010.

**5. Summary of Claimed Subject Matter<sup>1</sup>**

The claimed invention, as recited in independent claim 1, is directed to a method for identifying a first digital data sequence, comprising: calculating a first digital fingerprint based on at least part of the first sequence (page 6, lines 8 – 9), comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences (page 6, lines 9 – 11), if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to establish an identity of the first digital data sequence (page 6, lines 17 – 22); otherwise, the first fingerprint is established as unique (page 6, lines 12 – 16).

The claimed invention, as recited in independent claim 4, is directed to a system for identifying a first digital data sequence, comprising: a processor (page 4, line 27) for calculating a first digital fingerprint based on at least part of the first sequence (page 6,

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<sup>1</sup> *It should be explicitly noted that it is not the Appellant's intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.*

lines 8 – 9), comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences (page 6, lines 9 – 11), and if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to establish an identity of the first digital data sequence (page 6, lines 17 – 22); otherwise, the first fingerprint is established as unique (page 6, lines 12 – 16).

The claimed invention, as recited in independent claim 8, is directed to a method for enabling identification of a first digital data sequence, comprising: calculating a first digital fingerprint based on at least part of the first sequence (page 6, lines 8 – 9), comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences (page 6, lines 9 – 11), if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to provide information enabling identification of the first data sequence (page 6, lines 17 – 22); otherwise, the first fingerprint is established as unique (page 6, lines 12 – 16).

**6. Grounds of Rejection to be Reviewed on Appeal**

A. Whether claims 1 – 6 and 8 – 10 are properly rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement.

B. Whether claims 1 – 6 and 8 – 10 are properly rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement.

C. Whether claims 1 – 6 and 8 – 10 are properly rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

D. Whether claims 1, 4 and 8 are properly rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Shuster (U.S. Pat 6,826,546 B1), hereinafter referred to as Shuster.

E. Whether claims 1 – 6 and 8 – 10 are properly rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Levy et al. (U.S. Pat Pub 2003/0021441 A1), hereinafter referred to as Levy, in view of Lofgren et al. (U.S. Pat Pub 2002/0154144 A1), hereinafter referred to as Lofgren.

## **7. Argument**

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

### **A. Claims 1 – 6 and 8 – 10 are not properly rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement.**

According to MPEP §2163, when a disclosure describes a claimed invention in a manner that permits one skilled in the art to reasonably conclude that the inventor possessed the claimed invention the written description requirement is satisfied. This possession may be shown in any number of ways and an Appellants need not describe every claim feature exactly because there is no in haec verba requirement. Rather, to satisfy the written description requirement, all that is required is “reasonable clarity.” Also, an adequate description may be made in any way through express, implicit, or even inherent disclosures in the application, including words, structures, figures, diagrams, and/or formulae. Furthermore, generally, there is an inverse correlation between the level of skill and knowledge in the art and the specificity of disclosure necessary to satisfy the written description requirement. Information which is well known in the art need not be described in detail in the specification.

In the Office Action, pages 4 – 5, the Examiner asserts that it is not clear what the mathematical distance measure  $M(H_X, H_{1...N})$  is, and that it is unclear how the input parameters,  $H_X, H_{1...N}$  are input into the function  $M$  and applied to the function. Appellants respectfully disagree with such assertion.

In Appellants’ invention, a fingerprint  $H_X$  is compared against the existing ones

H<sub>1...N</sub>. As already disclosed in the Specification, for example, page 1, lines 20 – 21, unique features of a digital media sequence can be represented by a bit sequence, i.e. a fingerprint. Thus, in the claimed invention, the comparison involves comparing bit sequences. Appellants submit that it is well known in the art how to define an applicable mathematical distance measure between bit sequences, and therefore, it is not necessary to explicitly define the mathematical distance measure, showing how the input parameters H<sub>X</sub>, H<sub>1...N</sub> are input into and applied to the function M in Appellants' specification. Since each of the fingerprints, H<sub>X</sub>, H<sub>1...N</sub>, is a bit sequence, a skilled person in the art would find that there is no ambiguity in calculating the mathematical distance measure M(H<sub>X</sub>, H<sub>1...N</sub>) and comparing it with a predefined limiting distance.

In view of at least the foregoing, Appellants respectfully submit that ordinarily skilled artisans would reasonably conclude that Appellants possessed the claimed invention on the basis of the aforementioned fingerprint being a bit sequence representing unique features of a digital media sequence and the mathematical distance measure being well known in the art. Appellants further submit that this conclusion is buttressed by the maturity and predictability of the art and because an adequate disclosure need not be express or even implied. Thus, the present application adequately describes the claimed invention, and the rejection should be reversed.

**B. Claims 1 – 6 and 8 – 10 are not properly rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement.**

According to MPEP § 2164.01, the enablement requirement of §112 is satisfied



when an application describes a claimed invention in a manner that permits one of ordinary skill to practice it, without undue experimentation.

In the Office Action, pages 5 – 6, the Examiner asserts that a skilled person would not be able to practice the claimed invention without undue experimentation, alleging that the mathematical distance measure  $M$  is undefined. Appellants respectfully traverse.

As discussed above, a skilled person in the art would understand how to calculate the mathematical distance measure  $M(H_X, H_{1...N})$  and to compare it with a predefined limiting distance. Appellants respectfully submit that no experimentation is required to make and use the claimed invention, because a skilled person can define and use an applicable mathematical distance measure function  $M(H_X, H_{1...N})$ .

In view of the foregoing, Appellants respectfully submits that ordinarily skilled artisans would be able to make and use the claimed invention, because no undue experimentation is required. Therefore, the present application adequately enables the claimed invention, and the rejection should be reversed.

**C. Claims 1 – 6 and 8 – 10 are not properly rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

In the Office Action, page 7, the Examiner asserts that it is unclear as to what Appellants regard as to a “mathematical distance measure.” Appellants respectfully traverse.

As discussed above, a skilled person would clearly understand what the scope of

the term “mathematical distance measure” is, because how to define an applicable mathematical distance measure between bit sequences, i.e., fingerprints, is well known in the art. Therefore, the claimed “mathematical distance measure” is clear and definite, and the rejection should be reversed.

**D. Claims 1, 4 and 8 are not properly rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Shuster.**

It is respectfully submitted that the Examiner failed to establish a prima facie case of anticipation, because as discussed below, Shuster does not disclose all the limitations in Appellants’ claims.

**1. Claim 1**

For example, claim 1, in part, requires:

*“comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences, if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint.” (Emphasis added)*

In the Office Action, page 2, Response to Arguments section, the Examiner states that “a predetermined proximity criterion” may be interpreted as approximating a difference between two values and verifying said difference is within a tolerable difference. However, in the February 16, 2010 amendment, Appellants had already clarified the claim language in claims 1, 4 and 8 to specifically recite the criterion for a match as having a mathematical distance measure less than a predefined limiting

distance from the first fingerprint.

Shuster, Fig. 1 elements 144, 148 and 152; column 6, lines 15 – 19; column 6, lines 37 – 38, discloses a comparison of a check sum of a file with known check sums to determine whether there is a match. Shuster, column 5, lines 40 – 41, disclose that check sum is a number. Therefore, the process of comparing the check sums (i.e., comparing two numbers) is clearly not the same as determining whether the mathematical distance measure between two fingerprints is within a predefined limiting distance. Furthermore, Appellants submit that nothing in Shuster discloses that a mathematical distance measure is used for comparing fingerprints, or that a predefined limiting distance is used as a criterion to determine whether there is a match or not. Therefore, Shuster fails to disclose the above claimed features.

In view of at least the foregoing, Appellants submit that claim 1 is patentable over Shuster, and the rejection of claim 1 should be reversed.

## **2. Claims 4 and 8**

Similarly, independent claim 4, in part, requires:

*“comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences, and if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint.”*

Also, independent claim 8, in part, requires:

*“comparing the first fingerprint with a plurality of second fingerprints*

*respectively associated with a plurality of second digital data sequences,  
if multiple second fingerprints are matched that have a mathematical  
distance measure less than a predefined limiting distance from the first  
fingerprint.”*

Claims 4 and 8 are different from claim 1 and are to be interpreted independently. However, Appellant essentially repeats the above arguments for claim 1 and applies them to claims 4 and 8, pointing out why Shuster fails to disclose the above claimed features. Therefore, for at least the above reasons, claims 4 and 8 are patentable over Shuster, and the rejection of claims 4 and 8 should be reversed.

**E. Claims 1 – 6 and 8 – 10 are not properly rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Levy in view of Lofgren.**

It is respectfully submitted that the Examiner failed to establish a prima facie case of obviousness, because as discussed below, the combination of Levy and Lofgren does not teach or suggest all the limitations in Appellant's claims.

**1. Claims 1, 4 and 8**

As already discussed above, claim 1, in part, requires:

*“comparing the first fingerprint with a plurality of second fingerprints  
respectively associated with a plurality of second digital data sequences,  
if multiple second fingerprints are matched that have a mathematical  
distance measure less than a predefined limiting distance from the first  
fingerprint.” (Emphasis added)*

In the Office Action, page 2, Response to Arguments section, the Examiner states that “a predetermined proximity criterion” may be interpreted as approximating a difference between two values and verifying said difference is within a tolerable difference. However, as discussed above, in the February 16, 2010 amendment, Appellants had already clarified the claim language in claims 1, 4 and 8 to specifically recite the criterion for a match as having a mathematical distance measure less than a predefined limiting distance from the first fingerprint.

Although, Levy, paragraph [0054], discloses: “*A fingerprint of the audio signal is compared against the fingerprints in the database to find a match or a closest approximation. In some implementations, a fingerprint is used to find a set of potential matches,*” Levy does not disclose any criteria for the set of potential matches.

Specifically, Levy does not teach or suggest that the set of fingerprints have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, as claimed. Appellants submit that a closest approximation does not imply that its mathematical distance measure is less than a predefined limiting distance from the first fingerprint, because a fingerprint having the closest match can be farther than the predefined limiting distance as long as it is closer than any other fingerprints.

Furthermore, a set of potential matches does not imply that the fingerprints in the set have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, because a potential set can be formed by any rules, such as the first ten closest matches. The potential matches of Levy do not need to have any mathematical distance measure with respect to the fingerprint. Therefore, Levy does not teach or suggest the above claimed features. Appellants submit that Lofgren does

not teach or suggest the missing features in Levy as discussed above.

In view of at least the foregoing, Appellants submit that claim 1 is patentable over Levy and Lofgren, either singly or in combination, and the rejection of claim 1 should be reversed.

As discussed above, although claims 4 and 8 are different from claim 1 and are to be interpreted independently, they contain similar distinguishing features as in claim 1. Thus, Appellant essentially repeats the above arguments for claim 1 and applies them to claims 4 and 8, pointing out why Levy and Lofgren fail to teach or suggest the above claimed features. Therefore, for at least the above reasons, claims 4 and 8 are patentable over Levy and Lofgren, and the rejection of claims 4 and 8 should be reversed.

## **2. Claims 2, 3, 5, 6, 9 and 10**

Dependent claims 2, 3, 5, 6, 9 and 10 respectively depend from and inherit all the features of one of claims 1, 4 and 8. Thus claims 2, 3, 5, 6, 9 and 10 are patentable for at least the reason that they respectively depend from one of claims 1, 4 and 8, with each claim containing further distinguishing features. Therefore, the rejection of claims 2, 3, 5, 6, 9 and 10 should be reversed.

**Conclusion**

As discussed above, the cited references, either taken singly or in combination, fail to disclose, teach or suggest all of the claim limitations of the pending claims.

Accordingly, it is respectfully requested that the Board reverse the rejection of claims 1 – 3 and 5 – 16.

Respectfully submitted,

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**8. CLAIMS APPENDIX**

1. (Currently amended) A method for identifying a first digital data sequence, comprising:

calculating a first digital fingerprint based on at least part of the first sequence,  
comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences,

if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to establish an identity of the first digital data sequence; otherwise, the first fingerprint is established as unique.

2. (Previously presented) A method according to claim 1, wherein calculating the digital watermark associated with the first data sequence is dependent on information contained in the first fingerprint.

3. (Previously presented) A method according to claim 1, wherein calculating the digital watermark associated with the first data sequence is dependent on information resulting from the comparison between the first fingerprint and the plurality



of second fingerprints respectively associated with the plurality of second digital data sequences.

4. (Currently amended) A system for identifying a first digital data sequence, comprising:

a processor for calculating a first digital fingerprint based on at least part of the first sequence, comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences, and if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to establish an identity of the first digital data sequence; otherwise, the first fingerprint is established as unique.

5. (Previously presented) A system according to claim 4, wherein calculating the digital watermark associated with the first data sequence is dependent on information contained in the first fingerprint.

6. (Previously presented) A system according to claim 4, wherein calculating the digital watermark associated with the first data sequence is dependent on information resulting from the comparison between the first fingerprint and the plurality of second fingerprints respectively associated with the plurality of second digital data sequences.

7. (Cancelled)

8. (Currently amended) A method for enabling identification of a first digital data sequence, comprising:

calculating a first digital fingerprint based on at least part of the first sequence,  
comparing the first fingerprint with a plurality of second fingerprints respectively associated with a plurality of second digital data sequences,

if multiple second fingerprints are matched that have a mathematical distance measure less than a predefined limiting distance from the first fingerprint, calculating a digital watermark associated with the first data sequence and comparing the calculated digital watermark with watermarks respectively associated with the matched multiple second fingerprints' respectively associated second digital data sequences in order to provide information enabling identification of the first data sequence; otherwise, the first fingerprint is established as unique.

9. (Previously presented) A method according to claim 8, wherein calculating the digital watermark associated with the first data sequence is dependent on information contained in the first fingerprint.

10. (Previously presented) A method according to claim 8, wherein calculating the digital watermark associated with the first data sequence is dependent on information resulting from the comparison between the first fingerprint and the plurality

of second fingerprints respectively associated with the plurality of second digital data sequences.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled).

**9. RELATED EVIDENCE APPENDIX**

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by Appellants in the appeal.

**10. RELATED PROCEEDINGS APPENDIX**

Appellants are not aware of any appeals or interferences related to the present application.